

AD-A117 140

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
17901A HONEST JOHN, MISSILE NUMBERS 1630, 1641, 1644, ROUND NUM--ETC(U)
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METEOROLOGICAL DATA REPORT,

17901A HONEST JOHN
Missile Number 1630, 1641, 1644
Round Number HJ673ASL, HJ674ASL, HJ675ASL
10 June 1982

by

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ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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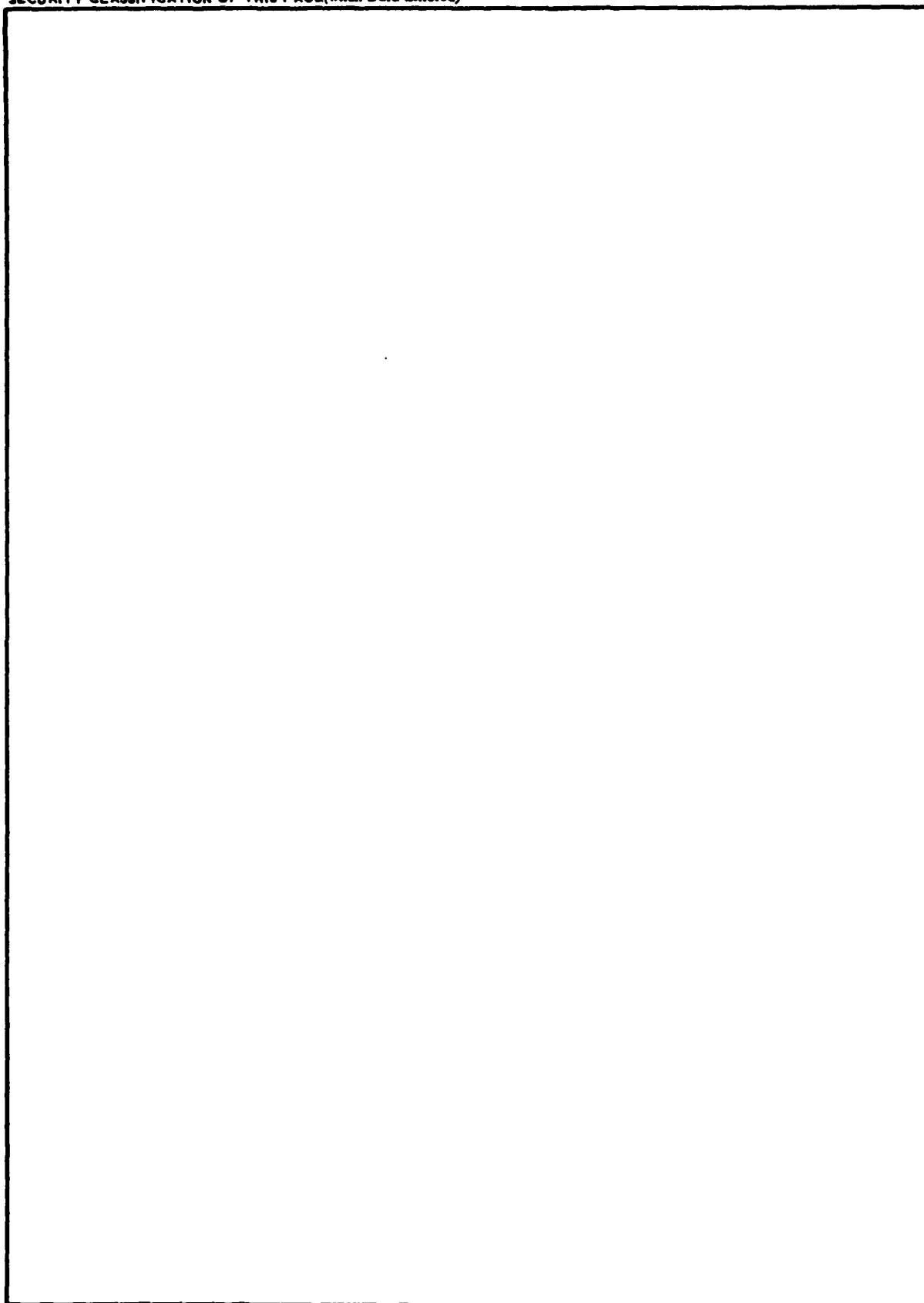
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INTRODUCTION

17901A HONEST JOHN, Missile Numbers 1630, 1641, and 1644, Round Numbers HJ673-ASL, HJ674ASL, and HJ675ASL, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1011, 1037, and 1355 MDT, 10 June 1982. The scheduled times were 1000, 1025, and 1400 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from NIKE-HERC Radar Tracked pilot-balloon observations at:

SITE AND ALTITUDE

WSD To high as possible

(2) Air structure data (rawinsonde) were collected at the following Met Sites:

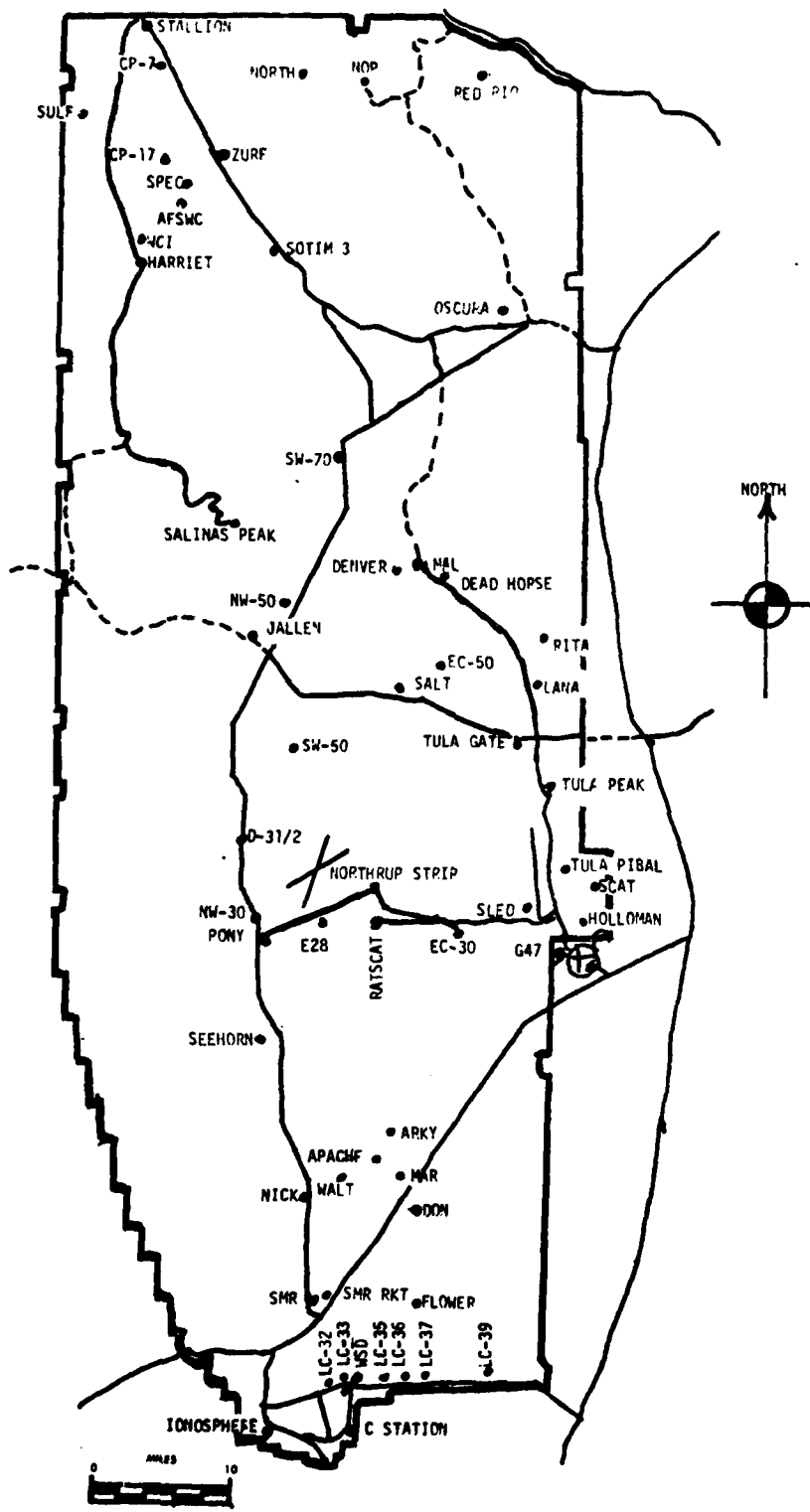
SITE AND TIME

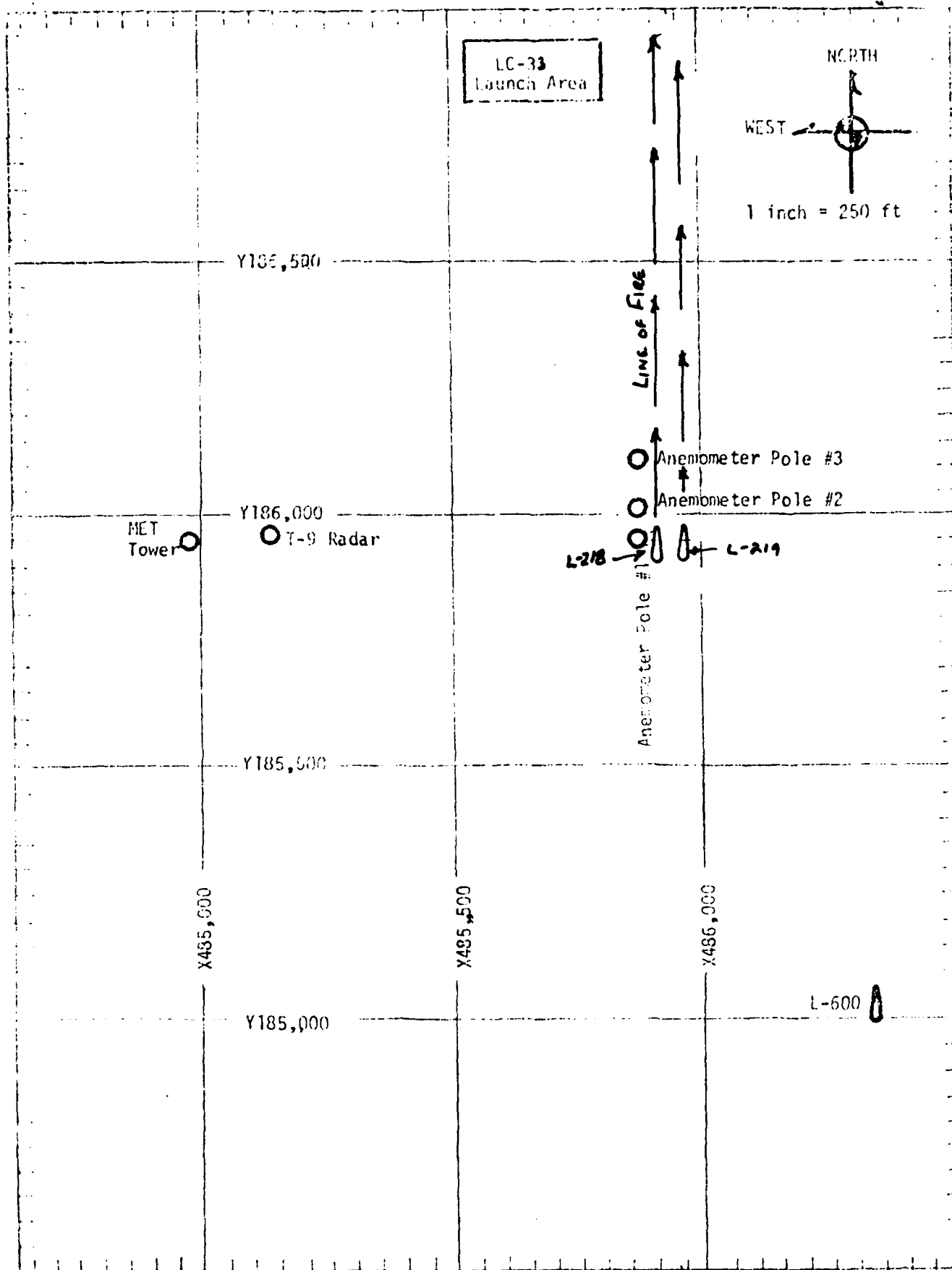
WSD 0700, 0800, 1008, and 1355 MDT

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WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE A STATION LC-33

DATE 10 Jun 82 1982 Y=484,982.64 X=185,957.64 H=3995.00

TIME M D Y	PRESSURE hPa	TEMPERATURE °C	DEW POINT °C	RELATIVE HUMIDITY %	DENSITY kg/m ³	DIRECTION degs Tn	SPEED kts	CHARACTER kts	VISIBIL- ITY
1011	880.6	28.4	13.1	39	1011	158	05		50
1037	880.4	29.6	13.0	36	1005	193	04		50
1355	877.3	36.5	05.5	15	981	222	10		40

INSTRUCTIONS TO VISIBILITY	CLOUDS							REMARKS		
	1st LAYER		2nd LAYER		3rd LAYER					
	AMT	TYPE	AMT	TYPE	HGT	AMT	TYPE			
	HGT	HGT	HGT	HGT	HGT	HGT	HGT			
	1	CU	6,000	2	CI	23000			H ALQDS	
	2	CU	6,000	2	CI	23000			H ALQDS	
	4	CU	6,000	3	AC	12,000	2	C	23,000	H ALQDS

PSYCHROMETRIC COMPUTATION

TIME	1011	1037	1355
DRY BULB TEMP.	28.4	29.6	36.5
WET BULB TEMP.	18.2	18.5	17.4
WET BULB DEPR.	10.2	11.1	19.1
DEW POINT	13.1	13.0	05.5
RELATIVE HUMID.	39%	36%	15%

TABLE 2. LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.29 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	MISG	03	-30	150	05	-30	128	08
-20	MISG	05	-20	156	05	-20	150	10
-10	MISG	06	-10	163	07	-10	155	09
0.0	MISG	13	0.0	159	09	0.0	160	07
+10	MISG	10	+10	158	08	+10	153	12

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	159	05	-30	149	07
-20	159	04	-20	155	06
-10	147	04	-10	171	MISG
0.0	158	05	0.0	180	MISG
+10	170	06	+10	164	07

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	140	06	-30	135	07
-20	145	08	-20	144	07
-10	163	MISG	-10	162	07
0.0	162	09	0.0	148	08
+10	154	09	+10	158	12

TABLE 3 LC-33 FIXED POLE ANEMOMETER MEASURED WIND

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X435,874.29 Y136,012.00 H4003.57 53.0 ft. AGL			POLE #3 X485,874.29 Y196,116.10 H4063.92 80.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	MISG	05	-30	161	04	-30	130	06
-20	MISG	05	-20	193	06	-20	189	04
-10	MISG	06	-10	153	05	-10	190	07
0.0	MISG	04	0.0	164	05	0.0	151	08
+10	MISG	08	+10	180	05	+10	150	07

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	189	07	-30	MISG	10
-20	189	06	-20	MISG	08
-10	177	03	-10	MISG	07
0.0	193	04	0.0	MISG	08
+10	185	06	+10	MISG	09

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	175	10	-30	156	10
-20	173	10	-20	164	11
-10	180	06	-10	165	10
0.0	180	08	0.0	149	08
+10	168	09	+10	151	10

TABLE

4

TC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
X485,874.29			X485,874.91			X485,877.29		
Y185,958.90			Y186,012.00			Y186,116.06		
H4018.74			H4033.57			H4063.92		
88.7 ft. AGL			53.0 ft. AGL			83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	MISG	08	-30	254	04	-30	237	09
-20	MISG	08	-20	237	04	-20	234	10
-10	MISG	07	-10	204	05	-10	237	07
0.0	MISG	05	0.0	240	03	0.0	225	05
+10	MISG	07	+10	230	09	+10	243	03

LEVEL #1, 12 FEET			LEVEL #2, 12 FEET		
X484,982.64, Y185,057.73, H3982.00 (base)			X484,982.64, Y185,057.73, H3982.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	208	05	-30	191	04
-20	229	05	-20	233	16
-10	202	08	-10	218	10
0.0	222	10	0.0	231	11
+10	221	10	+10	228	12

LEVEL #3, 102 FEET			LEVEL #4, 202 FEET		
X484,982.64, Y185,057.73, H3983.00 (base)			X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	199	09	-30	207	11
-20	213	13	-20	192	10
-10	210	11	-10	202	12
0.0	210	12	0.0	207	13
+10	205	12	+10	198	15

PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM WSD DATE 10 Jun 82 TIME 1011 MDT

COORDINATES (WSTM) X= 488.717.25 Y= 184.862.84 H= 4002.56

NOTE: WIND DIRECTIONS ARE REFERENCED TO _____.

HEIGHTS ARE METERS AGL _____ OR FEET AGL X.

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
SFC	160	06
100	M	M
200	M	M
300	148	10
400	198	12
500	168	12
600	232	09
700	229	07
800	200	15
900	221	10
1000	181	10
1100	180	13
1200	153	07
1300	182	11
1400	155	08
1500	183	10
1600	176	09
1700	170	13
1800	181	03
1900	190	03
2000	213	07
2100	166	10
2200	175	07
2300	154	05
2400	177	10
2500	200	02
2600	087	03
2700	121	06
2800	151	07
2900	194	05

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
3000	159	04
3100	140	03
3200	169	09
3300	164	12
3400	200	09
3500	171	11
3600	235	05
3700	241	06
3800	179	07
3900	178	07
4000	269	05
4100	331	03
4200	285	04
4300	214	13
4400	199	11
4500	189	09
4600	142	06
4700	133	05
4800	157	05
4900	192	06
5000	252	04
5100	221	05
5200	237	05
5300	179	07
5400	189	01
5500	198	10
5600	203	08
5700	203	11
5800	223	12
5900	224	07

HEIGHT AGL	DIPECTION DEGREES	SPEED KNOTS
6000	198	13
6100	226	13
6200	235	15
6300	242	19
6400	244	18
6500	228	13
6600	211	15
6700	227	07
6800	208	11
6900	205	13
7000	206	17
7100	202	15
7200	215	11
7300	214	11
7400	219	15
7500	230	17
7600	232	22
7700	214	24
7800	220	24
7900	226	20
8000	227	14
8100	221	14
8200	226	13
8300	237	14
8400	242	18
8500	235	22
8600	216	26
8700	214	27
8800	215	27
8900	205	22

PILOT BALLOON MEASURED WIND DATA

TABLE 5 cont'd

RELEASED FROM WSD DATE 10 Jun 82 TIME 1011 MDT

COORDINATES (WSTM) X= 488.717.25 Y= 184.862.84 H= 4002.56

NOTE: WIND DIRECTIONS ARE REFERENCED TO _____

HEIGHTS ARE METERS AGL OR FEET AGL X .

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
9000	201	20
9100	211	16
9200	238	18
9300	230	18
9400	237	24
9500	230	22
9600	225	23
9700	222	27
9800	225	20
9900	226	26
10000	216	23
10100	219	30
10200	218	24
10300	219	21
10400	217	29
10500	220	27
10600	209	22
10700	219	26
10800	212	28
10900	212	30
11000	220	25
11100	235	21
11200	239	28
11300	226	25
11400	239	28
11500	222	29
11600	226	22
11700	232	24
11800	246	23
11900	242	28

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
1200	226	36
12100	223	33
12200	224	35
12300	227	36
12400	227	28
12500	232	26
12600	236	33
12700	249	31
12800	233	28
12900	233	37
13000	234	34
13100	240	30
13200	236	31
13300	250	28
13400	251	29
13500	236	31
13600	242	26
13700	242	28
13800	252	29
13900	245	30
14000	239	29
14100	240	25
14200	225	31
14300	233	29
14400	233	28
14500	246	24
14600	238	20
14700	243	29
14800	231	27
14900	238	27

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PILLOT BALLOON MEASUREMENT WIND DATA

TABLE 6

RELEASED FROM WSD

DATE 10 Jun 82

TIME 1043 MDT

COORDINATES (WSTM)

X = 488,717.25

Y = 184,862.84

H = 4002.56

HEIGHTS ARE METERS AGL OR FEET AGL X

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
SFC	170	07
100	M	M
200	173	08
300	156	05
400	170	05
500	160	06
600	159	09
700	158	10
800	155	11
900	159	09
1000	150	10
1100	155	12
1200	149	14
1300	153	13
1400	159	15
1500	154	13
1600	148	10
1700	149	11
1800	148	08
1900	157	11
2000	162	11
2100	159	10
2200	157	11
2300	161	12
2400	148	11
2500	152	10
2600	159	11
2700	153	08
2800	130	09
2900	124	09

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
3000	116	08
3100	126	11
3200	135	12
3300	140	08
3400	147	07
3500	139	06
3600	143	08
3700	152	08
3800	165	07
3900	180	06
4000	189	05
4100	175	04
4200	202	02
4300	183	03
4400	194	03
4500	184	04
4600	171	03
4700	165	04
4800	170	04
4900	162	05
5000	170	05
5100	174	05
5200	181	06
5300	189	05
5400	172	07
5500	203	08
5600	210	09
5700	214	09
5800	218	09
5900	224	10

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
6000	231	10
6100	231	12
6200	237	12
6300	233	14
6400	238	14
6500	242	13
6600	237	14
6700	235	14
6800	229	14
6900	228	14
7000	227	14
7100	228	13
7200	226	13
7300	220	14
7400	221	12
7500	218	14
7600	216	15
7700	216	15
7800	216	15
7900	216	15
8000	218	15
8100	219	15
8200	221	16
8300	222	16
8400	223	17
8500	225	18
8600	221	21
8700	225	20
8800	225	20
8900	226	21

PILOT BALLOON MEASURED WIND DATA

TABLE 6 cont'd

RELEASED FROM WSD DATE 10 Jun 82 TIME 1043 MDT

COORDINATES (WSTM) X= 488.717.25 Y= 184.862.84 Z= 4002.56

HIGHLIGHTS ARE METERS AGL OR FEET AGL X .

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
9000	226	21
9100	223	21
9200	221	22
9300	220	22
9400	218	23
9500	218	23
9600	218	22
9700	219	23
9800	219	23
9900	219	23
10000	217	23
101000	217	23
102000	216	23
103000	215	24
104000	217	22
105000	215	24
106000	217	24
107000	218	24
108000	222	24
109000	224	24
11000	227	26
111000	230	26
11200	232	26
11300	233	27
11400	234	26
11500	233	27
11600	232	27
11700	235	27
11800	231	27
11900	230	30

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PILOT BALLOON MEASURED WIND DATA

TABLE 7RELEASED FROM WSD DATE 10 Jun 82 TIME 1354 MDTCOORDINATES (WSTM) X=488,717.25 Y=184,862.84 H=4002.56

NOTE: WIND DIRECTIONS ARE REFERENCED TO _____.

HEIGHTS ARE METERS AGL _____ OR FEET AGL X.

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
SFC	135	02
100	158	03
200	045	02
300	081	02
400	154	07
500	117	05
600	200	12
700	184	06
800	161	09
900	178	06
1000	161	12
1100	169	06
1200	142	07
1300	135	06
1400	178	09
1500	248	03
1600	176	09
1700	189	08
1800	156	09
1900	185	09
2000	184	08
2100	196	07
2200	182	10
2300	207	12
2400	192	14
2500	152	08
2600	214	12
2700	165	10
2800	186	13
2900	178	15

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
3000	150	06
3100	171	09
3200	157	14
3300	147	07
3400	189	09
3500	142	13
3600	157	11
3700	134	14
3800	168	09
3900	136	09
4000	161	13
4100	218	05
4200	161	06
4300	221	07
4400	274	09
4500	274	09
4600	200	06
4700	186	09
4800	175	06
4900	191	04
5000	180	08
5100	152	08
5200	227	01
5300	168	08
5400	171	08
5500	113	09
5600	186	05
5700	117	03
5800	144	06
5900	198	07

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
6000	147	04
6100	132	05
6200	142	03
6300	127	03
6400	070	02
6500	146	08
6600	182	11
6700	183	05
6800	175	11
6900	195	09
7000	156	10
7100	184	12
7200	142	08
7300	209	07
7400	195	13
7500	208	07
7600	182	12
7700	204	10
7800	202	10
7900	194	15
8000	214	17
8100	229	17
8200	201	12
8300	211	11
8400	207	12
8500	202	9
8600	187	11
8700	207	9
8800	174	10
8900	188	13
9000	198	15

TABLE 8

AIMING AND TIME NATO MET MESSAGES
10 June 1982

WSD 0700 MDT	WSD 0800 MDT
METB31324064	METB31324064
101300122869	101400122870
002803 024849	002110 044832
012611 026847	012412 050828
022711 031845	022510 051829
033111 034843	033110 053829
043706 038842	043406 056828
054206 039842	053907 056829
063912 038843	063912 054832

WSD 1008 MDT	WSD 1355 MDT
METB31324064	METB31324064
101610122870	101990122866
003210 059821	002402 078804
012810 050829	012909 071810
022610 044833	022708 064815
032710 041837	032607 045828
042906 041838	042704 039834
053407 041839	052904 043834
063815 039842	063408 043837

GEODETIC COORDINATES
 52.40045 LAT N
 106.37035 LONG W

SIGNIFICANT LEVEL DATA
 1010020200
 WHITE SANDS

TABLE-9

STATION ALTITUDE 3989.0 FEET MSL
 10 JUNE 62 0700 MDT
 ASCENSION 110. 200

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEPT DEGREES CENTIGRADE	HUMIDITY PERCENT
680.6	3989.0	20.3	57.0
570.3	4329.1	19.6	61.0
560.9	4637.6	20.9	65.0
650.0	5000.2	20.3	64.0
795.3	6082.8	18.1	59.0
785.9	7217.4	17.5	48.0
767.5	7883.3	18.5	21.0
740.1	8020.5	16.8	18.0
712.9	9043.3	13.7	18.0
700.0	10447.5	13.0	19.0
557.7	16551.6	-1.5	25.0

ULTRALIGHT COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

UPPER AIR DATA
1010020200
WHITE SANDS
TABLE-10

STATION ALTITUDE 3989.10 FEET MSL
10 JULIE 62 0700 MDT
ASCENSION NO. 400

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (IN) SPEED KNOTS	INDEX OF REFRACTION
3989.0	846.8	20.3	57.0	1039.5	669.5	100.0	1.000292
4000.0	840.5	20.3	57.1	1039.2	669.5	100.4	1.000291
4500.0	803.1	20.3	63.2	1020.1	669.0	173.4	1.000294
5000.0	850.0	20.3	64.0	1002.2	667.0	179.2	1.000291
5500.0	833.1	19.7	62.7	980.9	660.9	182.7	1.000294
6000.0	820.5	19.1	61.3	971.0	660.1	184.0	1.000277
6500.0	800.1	18.5	60.0	950.9	667.4	180.5	1.000270
7000.0	792.0	17.9	55.1	942.9	660.4	183.2	1.000261
7500.0	770.0	17.9	36.5	927.0	660.9	204.7	1.000290
8000.0	760.3	18.3	20.4	911.0	663.8	242.1	1.000242
8500.0	756.8	17.5	18.0	898.4	664.7	213.5	1.000216
9000.0	737.5	16.5	16.2	883.0	663.0	201.0	1.000211
9500.0	724.4	15.0	17.1	874.5	661.8	277.2	1.000208
10000.0	711.4	13.6	18.1	862.9	660.2	207.5	1.000205
10500.0	690.6	12.9	19.0	849.0	659.4	257.2	1.000202
11000.0	685.8	11.7	19.4	837.5	650.0	244.5	1.000199
11500.0	673.1	10.5	19.7	825.0	650.0	277.7	1.000196
12000.0	660.7	9.3	20.0	813.0	653.2	219.4	1.000192
12500.0	640.5	8.1	20.3	802.5	653.0	213.0	1.000189
13000.0	630.6	6.9	20.7	790.9	652.5	217.4	1.000186
13500.0	624.8	5.7	21.0	779.7	650.9	213.4	1.000183
14000.0	610.3	4.5	21.5	768.7	649.5	271.9	1.000180
14500.0	602.0	3.3	21.7	757.0	648.1	223.0	1.000177
15000.0	590.9	2.1	22.0	747.1	640.7	220.7	1.000174
15500.0	580.0	.9	22.3	730.0	645.5		1.000171
16000.0	569.3	-0.3	22.0	720.2	643.0		1.000169
16500.0	550.9	-1.5	23.0	710.0	642.4		1.000166

STATION ALTITUDE 3,89.00 FEET MSL
10 JUNE 62 0700 MDT
ASCENSION NO. 200

WIND DIRECTION
10100-20200
WIND SPEED
10100-20200

WIND DIRECTION
10100-20200
WIND SPEED
10100-20200

TABLE-II

PRESSURE ALTITUDE MILLIBARS	POTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	WIND DIRECTION DEGREES (TRUE)	WIND SPEED KNOTS
850.0	4796.	20.3	13.3	64.	179.3	0.4
800.0	6711.	18.3	10.3	59.	167.2	10.7
750.0	8523.	17.4	-7.2	10.	280.9	7.1
700.0	10437.	13.0	-10.1	19.	250.4	7.9
650.0	12461.	8.2	-13.2	20.	213.7	10.4
600.0	14608.	3.1	-16.7	22.	220.4	29.1

CLOUDS COMPOSITE,
 02.40043 LAT DEG
 106.37053 LON DEG

SIGNIFICANT LEVEL DATA
 101002001
 WHTL JMW05

STATION ALTITUDE 3489.00 FFT MSL
 10 JUNE 02 0800 MDT
 ASCENSION 10. 001

TABLE-12

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	
081.1	3009.0	26.0	13.0	40.0
065.2	4585.3	26.9	10.7	01.0
050.0	5032.4	24.0	10.0	02.0
034.4	5500.7	23.7	10.0	04.0
015.0	6210.3	23.9	10.4	03.0
797.2	6078.6	22.1	13.2	57.0
780.1	7206.7	21.9	7.7	40.0
779.2	7531.4	23.5	4.9	30.0
770.0	7071.2	22.8	-2.7	10.0
760.9	8210.8	23.2	-2.4	10.0
700.0	10500.7	16.6	-7.1	19.0
588.5	15321.4	5.2	-11.0	20.0
579.7	15725.4	4.8	-17.5	18.0
565.5	16001.7	2.4	-14.2	20.0

STATION ALTITUDE 3989.00 FEET MSL
10 JUNE 52 0800 MDT
ASCENSION NO. 201

UPPER AIR DATA
101002001
WHITE CLOUDS

TABLE-13

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND M/SEC	DIRECTION (DEGREES TRUE)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	881.1	26.0	46.0	1019.2	670.1	120.0	9.9	1.000293
4000.0	880.8	26.0	46.3	1018.7	670.1	120.0	9.9	1.000293
4500.0	865.7	26.8	50.9	996.5	677.0	124.7	8.7	1.000310
5000.0	850.9	24.8	61.9	980.5	675.3	122.2	8.2	1.000303
5500.0	836.3	23.8	63.8	972.7	674.2	109.9	8.6	1.000298
6000.0	821.9	23.8	63.3	955.2	674.3	100.0	9.7	1.000294
6500.0	807.8	23.1	60.4	942.2	673.3	180.0	11.0	1.000294
7000.0	793.8	22.0	50.7	930.9	674.5	192.0	8.8	1.000266
7500.0	780.1	23.3	31.0	912.0	672.3	204.0	6.2	1.000242
8000.0	766.5	23.0	18.0	899.0	671.2	232.0	4.2	1.000222
8500.0	753.2	22.4	18.1	885.0	670.0	257.0	4.8	1.000219
9000.0	739.9	21.0	18.3	874.5	668.4	250.0	6.9	1.000215
9500.0	727.0	19.6	18.5	863.2	667.3	240.0	9.4	1.000211
10000.0	714.2	18.2	18.8	852.5	665.7	230.1	11.8	1.000207
10500.0	701.7	16.8	19.0	841.4	664.0	227.0	12.9	1.000204
11000.0	689.1	15.6	19.8	829.8	662.0	229.1	14.0	1.000201
11500.0	676.6	14.4	20.8	818.2	661.2	221.3	15.4	1.000198
12000.0	664.4	13.2	21.7	806.6	659.8	217.7	17.9	1.000195
12500.0	652.3	12.0	22.7	795.0	658.4	210.9	20.3	1.000192
13000.0	640.5	10.8	23.6	784.5	657.0	210.1	22.4	1.000189
13500.0	629.0	9.6	24.0	773.0	655.0	220.1	23.8	1.000186
14000.0	617.6	8.4	25.5	762.9	654.2	222.0	25.5	1.000183
14500.0	606.4	7.2	26.4	752.4	652.0	223.9	27.4	1.000181
15000.0	595.4	6.0	27.4	742.0	651.4	223.4	29.3	1.000178
15500.0	584.0	5.0	28.6	731.1	650.2			1.000175
16000.0	573.8	3.9	21.6	720.0	640.9			1.000169

STATION ALTITUDE 3,89.00 FEET MSL
 10 JUL 52 0800 MDT
 ASCENSION 140. 201

LABORATORY LEVELS
 1010020001
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 100.37033 LON DEG

TABLE-14

PRESSURE GEOPOTENTIAL MILLIBARS	FELT	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT	REL. HUM. PERCENT	WIND DATA	
					VELOCITY (IN)	SPEED KNOTS
850.0	5029.	24.6	16.6	92.	153.3	6.2
800.0	6773.	22.4	13.7	98.	189.3	10.1
750.0	8615.	22.1	-3.2	10.	257.3	5.3
700.0	10558.	16.6	-7.1	19.	236.7	13.1
650.0	12608.	11.7	-8.6	23.	217.2	20.8
600.0	14783.	6.5	-11.1	27.	226.0	28.5

STATION ALTITUDE 3989.00 FEET MSL
10 JUNE 62 1008 MDT
ASCENSION 10.0 262

STATION LIGHT LEVEL DATA
10100.00000
WHITE 3989.00

ULOGULIC COORDINATES
32.40003 LAT DEG
106.37033 LONG DEG

TABLE-15

PRESSURE		GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM.
MILLIBARS	MSL FEET	AIR	DEWPOINT	DEGREES	CENTIGRADE	PERCENT
881.2	3989.0	29.7	14.7			40.0
867.4	4448.6	25.4	12.0			45.0
850.0	5032.1	23.2	11.9			49.0
820.2	6650.5	20.1	11.3			57.0
810.8	6577.2	19.2	10.7			58.0
801.8	6692.5	18.6	7.1			47.0
783.4	7347.4	19.4	7.0			22.0
700.0	10403.1	12.5	-9.8			20.0
667.3	11795.2	9.4	-11.0			21.0
590.9	14704.3	2.4	-14.2			28.0
581.9	15488.7	.6	-10.2			27.0
565.5	16218.0	-1.8	-11.0			47.0
549.1	16988.5	-2.8	-22.0			20.0
500.0	19401.5	-8.6	-19.4			91.0
485.5	20148.9	-10.9	-21.0			43.0
470.1	20960.4	-13.2	-21.2			51.0
444.1	22370.2	-17.0	-21.8			88.0
422.0	23630.5	-19.7	-24.2			67.0
417.7	23880.8	-19.9	-24.4			67.0
410.5	24304.7	-20.8	-20.0			61.0
400.8	24933.3	-22.3	-27.9			60.0
390.1	25170.1	-22.8	-20.0			59.0
381.9	26047.9	-24.8	-32.0			40.0
375.1	26977.2	-25.9	-35.7			39.0
319.9	30207.2	-34.4	-44.2			36.0
307.5	31115.0	-35.7	-40.4			32.0
300.0	31670.6	-37.3	-47.0			33.0

STATION ALTITUDE 3,891.0 FEET MSL
10 JUNE 62 1008 MDT
ASCENSION NO. 202

UPPER AIR DATA

GEODETIC COORDINATES
32-40043 LAT DEG
100-37033 LONG DEG

TABLE-16

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS/CUBIC METER	SPEED OF SOUND KILOMETERS PER SECOND	DIRECTION DEGREES (TRUE)	WIND SPEED KILOMETERS PER HOUR	INDEX OF REFRACTION
3989.0	801.2	29.7	40.0	1000.4	080.4	100.0	9.9	1.000293
4000.0	800.9	29.6	40.1	1000.4	080.3	179.6	9.9	1.000293
4500.0	803.9	25.2	45.4	1004.0	073.1	170.4	9.5	1.000200
5000.0	830.9	23.3	48.8	993.7	072.9	190.6	9.4	1.000202
5500.0	836.2	21.8	52.7	981.5	071.1	150.0	9.6	1.000279
6000.0	821.7	20.3	55.6	969.5	069.4	142.5	9.9	1.000275
6500.0	807.3	19.0	55.7	957.4	067.7	150.0	9.7	1.000260
7000.0	792.1	19.0	55.3	942.3	067.1	101.4	7.6	1.000240
7500.0	779.1	19.1	21.9	926.7	060.7	174.2	6.1	1.000228
8000.0	755.3	18.0	21.6	915.0	059.4	160.5	5.2	1.000225
8500.0	731.7	16.9	21.3	901.0	054.1	103.0	4.5	1.000219
9000.0	730.3	15.8	20.9	880.5	062.0	190.0	5.7	1.000219
9500.0	723.2	14.7	20.6	870.2	061.5	203.7	7.7	1.000211
10000.0	712.3	13.6	20.3	864.0	060.2	213.0	10.2	1.000207
10500.0	699.6	12.5	20.0	852.0	056.9	223.1	13.2	1.000203
11000.0	687.0	11.3	20.4	840.1	057.5	223.0	15.5	1.000200
11500.0	674.5	10.1	20.8	828.4	050.1	223.5	17.6	1.000197
12000.0	662.2	8.9	21.5	816.0	049.1	222.0	19.3	1.000194
12500.0	650.0	7.7	22.7	805.2	053.5	222.4	20.9	1.000191
13000.0	638.1	6.5	23.9	793.0	051.9	222.1	22.2	1.000188
13500.0	626.3	5.3	25.1	782.5	050.5	222.5	23.5	1.000185
14000.0	614.8	4.1	26.3	771.5	049.1	222.6	24.7	1.000182
14500.0	603.5	2.9	27.5	760.6	047.7	223.5	26.0	1.000180
15000.0	592.2	1.7	27.6	749.7	046.5	220.1	27.3	1.000177
15500.0	581.2	.5	27.9	739.0	044.0	231.5	28.4	1.000174
16000.0	570.2	-1.1	41.2	729.1	043.1	234.5	29.4	1.000174
16500.0	559.4	-2.2	37.1	718.2	041.7	230.0	28.9	1.000170
17000.0	548.8	-2.8	20.1	708.0	040.7	239.0	28.4	1.000163
17500.0	538.3	-4.0	24.5	696.2	039.3	239.2	28.1	1.000161
18000.0	527.9	-5.2	28.8	685.9	037.9	239.0	27.8	1.000159
18500.0	517.8	-6.4	33.2	675.7	036.5	237.5	27.6	1.000157
19000.0	507.6	-7.6	37.5	665.7	035.1	230.0	27.1	1.000155
19500.0	498.1	-8.9	41.3	656.0	033.0	239.0	25.8	1.000153
20000.0	488.4	-10.4	42.6	647.0	031.7	239.0	24.5	1.000151
20500.0	478.8	-11.9	46.5	637.0	030.0	239.0	23.1	1.000148
21000.0	469.4	-13.3	51.4	626.7	028.5	230.5	21.8	1.000146
21500.0	460.0	-14.6	50.7	619.4	026.0	230.0	20.7	1.000144
22000.0	450.9	-16.0	62.1	610.2	023.5	291.7	20.9	1.000142
22500.0	441.9	-17.3	66.1	601.0	023.5	292.4	21.6	1.000140
23000.0	433.0	-18.5	66.5	591.4	022.1	291.7	23.8	1.000137

STATION ALTITUDE 3989.00 FEET MSL
16 JUL 62
ASCENSION NO. 202

UPPER AIR DATA
101000Z
WHITE OCEAN

GEOMETRIC ALTITUDE 3989.00 FEET MSL
16 JUL 62
ASCENSION NO. 202

RELATIVE HUMIDITY
22.40045 LAT DEG
106.37033 LONG DEG

TABLE-16 cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	TEMPERATURE DEWPOINT DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CM ³ WATER	SPEED OF SOUND M/SEC	WIND DATA DIRECTION (10) SPEED (10) REFRACTION	INDEX OF REFRACTION
23500.0	424.2	-19.4	-24.0	60.9	582.0	620.4	241.0	1.000135
24000.0	415.7	-20.2	-24.9	65.3	571.9	619.9	241.0	1.000132
24500.0	407.2	-21.3	-26.0	60.7	562.0	610.3	242.0	1.000129
25000.0	398.9	-22.4	-28.1	59.7	554.0	617.0	242.0	1.000127
25500.0	390.7	-23.0	-30.0	54.9	545.0	615.0	243.0	1.000124
26000.0	382.7	-24.7	-32.4	48.6	536.5	614.2	243.0	1.000122
26500.0	374.7	-26.0	-35.7	59.0	527.9	612.0	243.1	1.000119
27000.0	366.8	-27.1	-36.9	58.6	519.2	611.2	243.6	1.000117
27500.0	357.1	-28.2	-38.0	58.2	510.0	609.0	243.9	1.000115
28000.0	351.5	-29.4	-39.2	57.8	502.2	608.3	243.5	1.000113
28500.0	344.1	-30.5	-40.3	57.4	493.9	606.9	242.0	1.000111
29000.0	336.8	-31.6	-41.4	57.0	485.0	605.5	241.4	1.000109
29500.0	329.7	-32.8	-42.6	56.6	477.0	604.0	240.4	1.000107
30000.0	322.7	-33.9	-43.7	56.2	469.9	602.0	240.1	1.000105
30500.0	315.8	-34.8	-44.9	54.7	461.0	601.5	240.0	1.000104
31000.0	309.0	-35.5	-46.1	52.5	453.0	600.0	240.0	1.000102
31500.0	302.4	-36.0	-47.2	52.7	445.0	599.0	240.0	1.000100

STATION ALTITUDE 3,399.0 FEET MSL
 10 JUNE 62 1008 MDT
 ASCENSION NO. 402

LABORATORY LEVELS
 1030020202
 WHITE BRIMES

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37053 LONG DEG

TABLE-17

PRESSURE GEOPOTENTIAL		TEMPERATURE		RELATION		WIND DATA	
MILLIBARS	FET	AIR	TEMPERATURE	TEMPERATURE	RELATION	Direction	Speed
		DEGREES	CELSIUS	CELSIUS	RELATION	Direction	Speed
850.0	5028.	23.2	11.9	49.	159.9	159.9	3.4
800.0	8750.	18.7	6.4	43.	155.9	155.9	3.2
750.0	8563.	16.7	-5.5	21.	190.2	190.2	4.8
700.0	10475.	12.5	-9.0	20.	222.0	222.0	13.1
650.0	12495.	7.7	-12.3	23.	222.4	222.4	20.9
600.0	14638.	2.5	-14.2	20.	220.1	220.1	20.4
550.0	16922.	-2.7	-21.7	22.	239.0	239.0	23.4
500.0	19374.	-8.6	-19.4	41.	239.7	239.7	20.1
450.0	22015.	-16.1	-21.0	63.	241.7	241.7	20.9
400.0	24491.	-22.3	-27.9	80.	247.3	247.3	27.6
350.0	28064.	-29.6	-39.4	33.	253.4	253.4	30.5
300.0	31015.	-37.3	-47.0	33.			

GEOLOGIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

SIGNIFICANT LEVEL DATA
 10100.2003
 WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
 10 JUL 62 1355 MDT
 ASCENSION NO. 203

TABLE-18

PRESSURE	GEOLOGIC ALTITUDE	TEMPERATURE	REL. HUM.
INCHES	MSL FEET	AIR DEWPOINT	PERCENT
		DEGREES CENTIGRADE	
678.5	3989.0	36.2	10.0
667.5	4369.7	32.4	20.0
650.0	4962.6	30.6	20.0
791.9	7020.0	25.0	25.0
700.0	10511.3	15.0	34.0
638.7	13025.8	7.0	55.0
621.5	13761.2	4.6	61.0
595.9	14804.8	2.2	75.0
587.7	15252.8	1.3	70.0
574.3	15634.7	2.0	59.0
571.1	16612.8	1.2	55.0
546.5	17182.5	-1.2	25.0
536.3	17059.2	-3.2	42.0
500.0	19479.1	-7.6	79.0
452.0	22035.6	-13.7	60.0
424.4	23313.5	-16.0	47.0
414.0	24168.2	-17.8	45.0
400.0	25059.1	-20.5	48.0
380.0	25923.0	-22.3	58.0
379.0	26364.8	-23.4	50.0
362.4	27639.0	-25.5	50.0
358.2	27710.8	-26.5	45.0
351.0	29577.4	-31.2	49.0
316.0	30509.3	-43.3	50.0
311.6	30762.8	-40.3	44.0
300.0	31847.5	-46.5	35.0

STATION ALTITUDE 3989.00 FEET
10 JUNE 62 1355 MDT
ASCENSION NO. 203

UPPER AIR DATA
101002000
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
100.37033 LONG DEG

TABLE-19

GEOMETRIC ALTITUDE ASL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	DEPTH OF SOUND METER	WIND DIRECTION (IN) KNOTS	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	870.5	36.2	-0.2	980.7	080.1	135.0	1.9	1.000244
4000.0	870.2	36.1	.1	980.7	080.0	135.0	2.0	1.000244
4500.0	865.5	32.0	6.2	981.0	082.0	141.7	2.3	1.000250
5000.0	848.9	30.5	5.1	970.1	080.2	140.4	2.7	1.000252
5500.0	834.4	29.1	4.4	950.0	070.0	149.0	3.1	1.000248
6000.0	820.2	27.8	3.8	940.0	071.1	152.5	3.5	1.000244
6500.0	800.2	26.4	3.2	934.2	073.5	154.0	4.0	1.000241
7000.0	792.4	25.1	2.5	922.5	073.4	150.5	4.4	1.000237
7500.0	770.6	23.6	2.2	910.0	072.3	150.5	4.3	1.000234
8000.0	764.9	22.2	1.8	899.2	070.7	161.5	3.9	1.000231
8500.0	751.6	20.8	1.4	887.8	069.0	163.2	3.5	1.000228
9000.0	730.4	19.3	1.0	870.5	067.4	163.5	3.1	1.000224
9500.0	725.5	17.9	.5	865.5	065.7	170.5	3.1	1.000221
10000.0	712.8	16.5	-0.1	854.0	064.1	162.0	3.7	1.000216
10500.0	700.3	15.0	-0.7	843.9	062.4	167.3	4.3	1.000215
11000.0	687.6	13.4	-0.7	833.2	060.0	170.7	4.9	1.000212
11500.0	675.2	11.9	-0.9	822.7	050.0	175.1	6.2	1.000210
12000.0	665.0	10.3	-1.1	812.4	050.9	174.4	8.2	1.000208
12500.0	651.1	8.7	-1.4	802.2	053.1	175.2	10.3	1.000205
13000.0	639.3	7.1	-1.9	792.2	053.2	177.0	12.2	1.000202
13500.0	627.6	5.5	-2.1	782.2	051.5	173.9	14.0	1.000200
14000.0	610.0	4.1	-2.1	771.5	049.7	202.0	14.7	1.000198
14500.0	604.5	3.0	-1.9	760.0	040.5	200.1	16.4	1.000196
15000.0	595.3	1.9	-2.3	743.0	047.2	203.2	23.4	1.000193
15500.0	582.2	1.0	-5.0	735.9	040.0	212.2	30.3	1.000184
16000.0	571.4	1.2	-6.8	725.7	040.1	210.7	31.0	1.000180
16500.0	560.6	-0.2	-11.0	715.2	044.7	219.0	30.5	1.000172
17000.0	550.1	-0.8	-16.5	702.9	043.5	221.5	29.3	1.000165
17500.0	539.7	-2.0	-16.5	692.0	041.9	221.7	29.4	1.000162
18000.0	529.5	-3.3	-16.1	682.0	040.4	222.5	30.2	1.000163
18500.0	519.3	-4.8	-12.4	672.9	033.0	225.7	31.9	1.000162
19000.0	509.4	-6.2	-11.3	663.5	037.1	225.0	33.2	1.000162
19500.0	499.6	-7.6	-10.7	654.2	035.9	220.5	34.2	1.000160
20000.0	489.8	-8.8	-12.2	644.4	033.9	220.5	34.7	1.000157
20500.0	480.2	-10.0	-13.7	634.0	032.5	230.9	34.9	1.000153
21000.0	470.9	-11.2	-15.2	623.3	031.0	230.5	34.8	1.000150
21500.0	461.7	-12.4	-16.7	610.0	029.5	220.7	34.6	1.000146
22000.0	452.0	-13.6	-19.2	600.0	028.0	220.0	34.6	1.000143
22500.0	442.7	-14.5	-20.5	597.0	026.0	220.1	34.8	1.000140
23000.0	434.8	-15.4	-23.0	587.5	025.7	222.7	35.8	1.000135

STATION ALTITUDE 3489.0 FEET MSL
10 JUNE 62 1355 MDT
ASCENSION NO. 203

U, PER AIR DATA
101002000
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

TABLE-19 cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	TEMPERATURE DEWPOINT DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND METERS PER SECOND	DIRECTION SPEED KNOTS	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.0	420.2	-16.4	-25.2	46.1	577.0	024.0	222.0	37.2	1.000133
24000.0	417.6	-17.4	-26.8	43.8	568.0	023.2	224.0	37.8	1.000131
24500.0	409.2	-18.0	-27.3	44.9	560.2	022.0	220.0	37.6	1.000129
25000.0	401.0	-20.3	-29.5	47.7	552.2	019.0	222.7	36.9	1.000126
25500.0	392.8	-21.4	-28.4	53.1	543.3	010.3	235.0	36.9	1.000124
26000.0	384.8	-22.5	-28.7	56.6	534.0	017.0	239.0	36.9	1.000122
26500.0	376.9	-23.7	-31.1	50.0	526.0	013.5	243.4	36.2	1.000120
27000.0	369.1	-24.6	-32.0	50.0	517.2	014.0	247.4	36.9	1.000118
27500.0	361.5	-25.7	-33.3	48.5	503.7	012.4	250.7	38.6	1.000116
28000.0	353.9	-27.2	-35.7	43.9	501.2	011.0	250.0	41.4	1.000113
28500.0	346.5	-28.5	-36.5	45.5	493.2	009.0	240.2	44.6	1.000112
29000.0	339.2	-29.7	-37.4	47.1	485.3	007.9	240.1	46.9	1.000110
29500.0	332.1	-31.0	-39.2	48.8	477.0	006.3	244.2	49.1	1.000108
30000.0	325.0	-32.2	-40.4	43.1	469.7	004.8	243.2	50.6	1.000106
30500.0	318.1	-33.3	-43.1	36.1	461.9	003.4	242.2	52.1	1.000104
31000.0	311.3	-34.4	-42.4	43.6	454.1	002.0			1.000102
31500.0	304.6	-35.6	-44.7	38.5	446.7	000.4			1.000100

STATION ALTITUDE 3,989.00 FL. T MSL
10 JUL 62
ASCENSION NO. 2031355 MDT

LABORATORY LEVELS
1610020203
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
100.37053 LONG DEG

TABLE-20

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEW POINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
150.0	4959.	30.6	5.1	20.	140.0	4.7
600.0	6721.	25.8	2.9	25.	155.4	4.1
750.0	8560.	20.6	1.4	20.	165.0	3.4
700.0	10501.	15.0	-7.7	34.	187.3	4.3
650.0	12536.	8.5	-1.5	49.	193.2	10.5
600.0	14685.	2.6	-1.0	73.	207.1	19.1
550.0	16983.	-8.	-16.4	30.	221.5	29.2
500.0	19451.	-7.6	-10.0	79.	220.2	34.1
450.0	22112.	-13.9	-18.6	60.	225.9	34.7
400.0	25016.	-20.5	-28.0	40.	233.1	30.8
350.0	28214.	-27.9	-36.1	45.	249.1	45.0
300.0	31783.	-30.5	-46.3	35.		

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